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09/547,503 04/12/00 PARKER

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EXAMINER

IM22/0621

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ART UNIT

PAPER NUMBER

1742

DATE MAILED:

06/21/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/547,503

Applicant(s)

PARKER, ART J.

Examiner

Tima M. McGuthry-Banks

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-63 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

Art Unit: 1742

DETAILED ACTION

Claim Objections

1. Claim 25 is objected to because of the following informalities: applicants claim roasting in a hydrocarbon furnace. It appears that the applicants made in error, and "hydrocarbon" should be "hydrogen," based on the remainder of the claims and the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.

3. Claims 1-63 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Applicants do not include a step of or relating to extracting metals as claimed in the preamble of Claims 1, 21, 37, and 62. Currently, the claims read on treating ore.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1742

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Shubert (US 5,238,485).

Shubert anticipates the invention as claimed. Shubert teaches extracting precious metals from complex ores and ore concentrates containing iron compounds by a pyrometallurgical process (column 3, lines 28-31). A reducing agent such as flour is added to the fluxing agent (column 4, line 56). A base metal, such as copper, lead, or mixtures thereof is included with the furnace charge to collect and retain the precious metals (lines 64-67). Regarding Claim 2, either a carbon arc or induction furnace is satisfactory (column 7, lines 2 and 3). Regarding Claim 5, it is inherent that the flour [hydrocarbon] would be added in particulate form, since flour is commonly known to be in that form.

7. Claims 21, 22, 24, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Shubert.

Shubert anticipates the invention as claimed. Shubert teaches extracting precious metals from complex ores and ore concentrates containing iron compounds by a pyrometallurgical process (column 3, lines 28-31). A reducing agent such as flour is added to the fluxing agent (column 4, line 56). A base metal, such as copper, lead, or mixtures thereof is included with the furnace charge to collect and retain the precious metals (lines 64-67). The resultant ingot may be easily comminuted to facilitate further processing to additionally concentrate the precious metals contained therein (column 7, lines 30-32). Regarding Claim 22, either a carbon arc or induction

Art Unit: 1742

furnace is satisfactory (column 7, lines 2 and 3). Regarding Claim 24, it is inherent that the flour [hydrocarbon] would be added in particulate form, since flour is commonly known to be in that form.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-3, 5-15, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over White (US 4,892,631) in view of Shubert.

White teaches recovering precious metals from complex ores by heating a complex ore and a base metal to smelt the precious metal values (Claim 1). Regarding Claim 3, the metal source is crushed, ground, or otherwise pulverized before smelting (column 3, lines 34 and 35). Regarding Claim 6, borax is added as part of the flux (column 4, line 39). Regarding Claims 7, 9-11, 13-15, 17, and 19, White teaches recycling the portion of the material smelted that contains the precious metals (called anode mud) and recharging it to the furnace as many times as necessary (column 2, lines 48-51). The charge is broken into fine particles (column 6, line 54). Each charge must be fluxed for maximum smelting capacity of the base material being smelted and for maximum resistance in the furnace (column 3, lines 53-56). However, White does not

Art Unit: 1742

disclose mixing a hydrocarbon as claimed in Claim 1, that the hydrocarbon is in particulate form as claimed in Claim 5, or using an induction furnace as claimed in Claims 2, 8, and 12.

Regarding the mixing the hydrocarbon in Claim 1, White teaches an example of a flux that contains charcoal or coke (column 4, line 41). Shubert teaches extracting precious metals from complex ores and ore concentrates containing iron compounds by a pyrometallurgical process (column 3, lines 28-31) by adding a reducing agent such as coke, charcoal, or flour to solubilize ferric ion compounds and reduce them to the ferrous state (column 4, lines 53-59). Essentially all of the iron contained in the sample reports to the slag in the form of an iron silicate (lines 62-64). It would have been obvious to one with ordinary skill in the art at the time the invention was made that to substitute flour for the carbon component of the flux of White, since White teaches that the resultant slag should contain iron silicate (White, column 4, lines 28-30).

Regarding using an induction furnace in Claims 2, 8, and 12, Shubert teaches a similar endeavor of treating ores to recover precious metals. The process can occur with either carbon electrodes (electric arc) or an induction furnace (column 7, lines 2 and 3). It would have been obvious to one with ordinary skill in the art at the time the invention was made it has been held to substitute an induction furnace for the electric arc furnace, since to be entitled to patentable weight in method claims, the recited structural limitations therein must affect the method in a manipulative sense and not amount to mere claiming of a use of a particular structure. *Ex parte Pfeiffer*, 135 USPQ 31, 33 (Bd. Pat. App. & Inter. 1961).

Art Unit: 1742

Regarding the particulate form of hydrocarbon in Claim 5, it is inherent that the flour [hydrocarbon] would be added in particulate form, since flour is commonly known to be in that form.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shubert as applied to Claim 1 above, and further in view of White.

Shubert discloses the invention substantially as claimed. However, Shubert does not specifically disclose that the ore is particulated as claimed in Claim 3. It is well known in the art to particulate or grind ore before treatment, as exemplified in White: White teaches that ore should be ground because of the refractory nature of the heavy minerals that are concentrated in the ore (White, column 3, lines 35-40).

11. Claims 21, 24, 26, 27, 29, 31, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Shubert.

White teaches recovering precious metals from complex ores by heating a complex ore and a base metal to smelt the precious metal values (Claim 1). The metal source is crushed, ground, or otherwise pulverized before smelting (column 3, lines 34 and 35). The portion of the material smelted that contains the precious metals is recycled (called anode mud) and recharged it to an electric arc furnace as many times as necessary (column 2, lines 48-51). The charge is broken into fine particles (column 6, line 54). Each charge must be fluxed for maximum smelting capacity of the base material being smelted and for maximum resistance in the furnace (column 3, lines 53-56). However, White does not disclose mixing a hydrocarbon as claimed in

Art Unit: 1742

Claims 21 and 29, a hydrocarbon in particulate form as claimed in Claim 24, using an induction furnace as claimed in Claims 28 and 30, or that the hydrocarbon is flour as claimed in Claim 34.

Regarding the mixing the hydrocarbon (flour) in Claims 21, 29, and 34, White teaches an example of a flux that contains charcoal or coke (column 4, line 41). Shubert teaches extracting precious metals from complex ores and ore concentrates containing iron compounds by a pyrometallurgical process (column 3, lines 28-31) by adding a reducing agent such as coke, charcoal, or flour to solubilize ferric ion compounds and reduce them to the ferrous state (column 4, lines 53-59). Essentially all of the iron contained in the sample reports to the slag in the form of an iron silicate (lines 62-64). It would have been obvious to one with ordinary skill in the art at the time the invention was made that to substitute flour for the carbon component of the flux of White, since White teaches that the resultant slag should contain iron silicate (White, column 4, lines 28-30).

Regarding the particulate form of hydrocarbon in Claim 24, it is inherent that the flour [hydrocarbon] would be added in particulate form, since flour is commonly known to be in that form.

Regarding using an induction furnace in Claims 28 and 30, Shubert teaches a similar endeavor of treating ores to recover precious metals. The process can occur with either carbon electrodes (electric arc) or an induction furnace (column 7, lines 2 and 3). It would have been obvious to one with ordinary skill in the art at the time the invention was made it has been held to substitute an induction furnace for the electric arc furnace, since to be entitled to patentable

Art Unit: 1742

weight in method claims, the recited structural limitations therein must affect the method in a manipulative sense and not amount to mere claiming of a use of a particular structure. *Ex parte Pfeiffer*, 135 USPQ 31, 33 (Bd. Pat. App. & Inter. 1961).

12. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shubert as applied to Claim 21 above, and further in view of Janz et al (JS 6,231,638 B1).

Shubert discloses the invention substantially as claimed. However, Shubert does not disclose or suggest using plastic or wood as claimed in Claims 35 and 36 for reducing agents. It would have been obvious to one with ordinary skill in the art at the time the invention was made to use plastic or wood instead of coke, charcoal, or flour, since Janz teaches that other carbon-bearing substances such as wood and plastic can be used reduce ore (column 1, lines 60-65).

13. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Shubert as applied to Claim 21 above, and further in view of Janz.

White in view of Shubert discloses the invention substantially as claimed. However, White in view of Shubert does not disclose or suggest using plastic or wood as claimed in Claims 35 and 36 for reducing agents. It would have been obvious to one with ordinary skill in the art at the time the invention was made to use plastic or wood instead of coke, charcoal, or flour, since Janz teaches that other carbon-bearing substances such as wood and plastic can be used reduce ore (column 1, lines 60-65).

Art Unit: 1742

Allowable Subject Matter

14. Claims 4, 16, 18, 20, 23, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. Claims 37-63 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112, second paragraph, set forth in this Office action.

16. The following is a statement of reasons for the indication of allowable subject matter: regarding Claims 16, 18, 20, 32, 37, and 62, the prior art of record does not disclose or suggest using a hydrogen furnace as claimed. Regarding Claims 4, 23, 37, and 62, the prior art of record does not provide a basis for using particulated copper as claimed.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamamoto (JP 63111134 A) teaches collecting gold from sulfide ore and telluride gold and silver ore. The ore is pulverized and borax is added thereto. After the powder is inductively roasted and briquetted, the briquettes are cooled. The briquettes are pulverized again and classified to metal and waste powders. The metal powder is immersed in a nitric acid solution to separate Te and the powder is converted to oxide. The oxide is filtered and separated to form a residual matter and solution component. The residual matter is dried, mixed with borax, and roasted. The solution component is charged with copper powder to substitute the

Art Unit: 1742

gold and silver components. The powder is filtered, mixed with borax, immersed in sulfuric acid, and rested until briquettes are formed. The briquettes are inductively roasted (Japanese abstract).

Marteanenko et al (US 5,421,857 A) teaches obtaining metals from their compounds and their alloys in a raw material by comminuting the raw material, adding a chemical element present in the raw material and an oxygen containing compound to form a burden, and roasting the burden in an oxygen-containing atmosphere to produce solid oxides, comminuting the oxides, and reducing at high temperature the oxides by mixing a reducing agent with the oxide (Claim 1).

Meyer (US 815,614) teaches extracting precious metal from zinc ores using a mixture of comminuted ore and copper, heating the mass to sublimate zinc and form a matte containing the precious metal, and separating the matte (Claim 1). The mixture also contains a "proper" reducing material such as carbonaceous matter (lines 29-31).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tima M. McGuthry-Banks, whose telephone number is 703-308-1917. The examiner can normally be reached on 9:00-5:30.

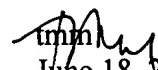
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King, can be reached on 703-308-1146. The fax numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-7719 for After Final communications.

Application/Control Number: 09/547,503

Page 11

Art Unit: 1742

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, whose telephone number is 703-308-0651.


June 18, 2001


ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700